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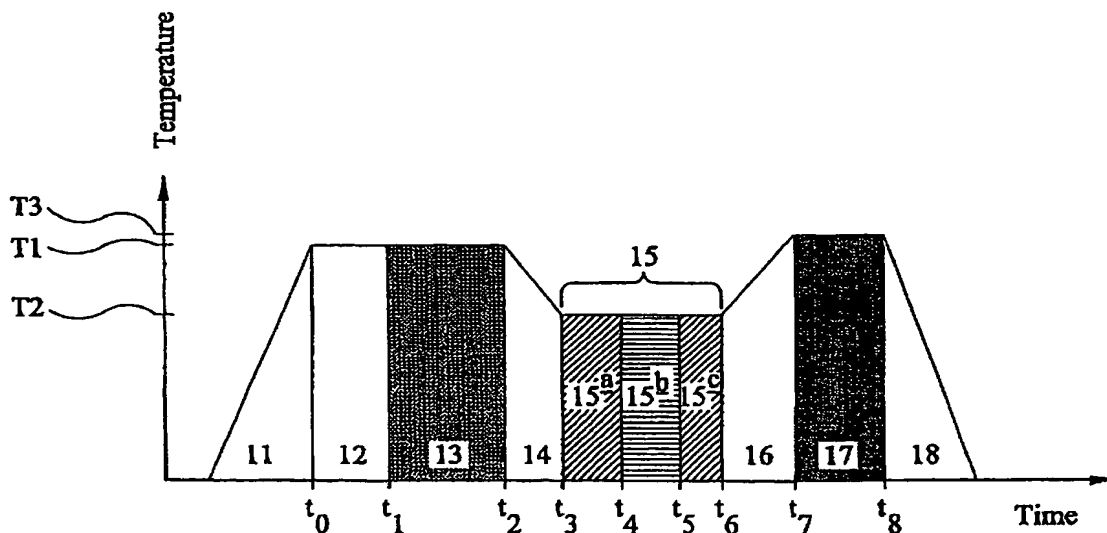
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(54) Title: MBE GROWTH OF A SEMICONDUCTOR LAYER STRUCTURE



(57) Abstract: A method of MBE growth of a semiconductor layer structure comprises growing a first (Al,Ga)N layer (step 13) over a substrate at the first substrate temperature (T1) using ammonia as the nitrogen precursor. The substrate is then cooled (step 14) to a second substrate temperature (T2) which is lower than the first substrate temperature. An (In,Ga)N quantum well structure is then grown (step 15) over the first (Al,Ga)N layer by MBE using ammonia as the nitrogen precursor. The supply of ammonia to the substrate is maintained continuously during the first growth step, the cooling step, and the second growth step. After completion of the growth of the (In,Ga)N quantum well structure, the substrate may be heated to a third temperature (T3) which is greater than the second substrate temperature (T2). A second (Al,Ga)N layer is then grown over the (In,Ga)N quantum well structure (step 17).



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/JP 03/10420

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01L21/203 H01L33/00 C30B23/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L C30B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>NAKAMURA S ET AL: "CANDELA-CLASS HIGH-BRIGHTNES INGAN/AIGAN DOUBLE-HETEROSTRUCTURE BLUE-LIGHT-EMITTING DIODES"</p> <p>APPLIED PHYSICS LETTERS, AMERICAN INSTITUTE OF PHYSICS. NEW YORK, US, vol. 64, no. 13, 28 March 1994 (1994-03-28), pages 1687-1689, XP000441256</p> <p>ISSN: 0003-6951</p> <p>the whole document</p> <p style="text-align: center;">----- -/--</p>	1-10

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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- * & * document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	NAKAMURA S ET AL: "SUPERBRIGHT GREEN INGAN SINGLE-QUANTUM-WELL-STRUCTURE LIGHT-EMITTING DIODES" JAPANESE JOURNAL OF APPLIED PHYSICS, PUBLICATION OFFICE JAPANESE JOURNAL OF APPLIED PHYSICS. TOKYO, JP, vol. 34, no. 10B, PART 2, 15 October 1995 (1995-10-15), pages L1332-L1335, XP000702227 ISSN: 0021-4922 cited in the application 2. Experimental	1-10
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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